patterns, and the sharpness of textural transitions. Textural differences between Albemarle and Pamlico Sounds can be explained by sediment sources. Whereas Albemarle Sound received large amounts of organic-rich muds from tributary rivers (before upstream impoundments), Pamlico Sound derived much of its sediment from barrier islands and from shore erosion.

7. The lower Pamlico and Neuse River estuaries have muddy bottoms from fine-grained sediments that have been derived from deeply weathered Piedmont soils. Transitions from channel-flank sands to channel-bottom muds are extremely sharp in the estuaries. Some data sets show adjacent samples that differ in sand content by 99%. As in Albemarle Sound, the fine-grained sediments are clearly confined to the deep axis of the estuary and sand on the channel margins are supplied from local shoreline erosion.

8. Examination of two Landsat Thematic Mapper (Band 2) images has revealed three features that may be important to suspended-sediment flux. First, the highest turbidities, irrespective of wind direction or river stage, are in Pamlico Sound. Second, within Pamlico Sound the suspended-sediment concentrations, at least in surface waters, appear to be over the muddy central basin. Third, the surface turbidity patterns are more complex than the bottom textural patterns and may reflect differential sediment resuspension, water column mixing processes, or eddies that have formed from wind-induced movement of surface waters.

9. In common with most estuaries and lagoons, the Albemarle-Pamlico system may be expected to retain within its boundaries a major fraction of the sediment supplied, regardless of source. The two accumulation sites for silt- and clay-sized sediments, the fresh-to-brackish estuarine waters associated with riverine sources and the deep central basin of Pamlico Sound, are not connected; rather, they have discrete boundaries and are separated by a region of fine sand. These two environments, which are lithologically very similar, represent two quite different processes of sedimentation. Whereas muds in Albemarle Sound, Pamlico River and the Neuse River are products of rapid sedimentation from deposition of flocculated particulates, muds in the central basin of Pamlico Sound are products of presumably slow sedimentation from many cycles of deposition and resuspension.

10. Muds that bypass the rivers are confined by, and recycled in, the sound until they ultimately end up residing in the deep central basin. Any accumulation is from particles that have escaped the estuarine "trap." Thin laminae of mud deposited over the broad sand blanket during periods of high sediment discharge are probably winnowed from shoal areas by storm waves. Sedimentation rates in the deep basin of Pamlico Sound are unknown and sufficient data are not available to quantify the presumably small amount of sediment that may escape through the three inlet systems.